conflict raged about the age of man, and evidence was gradually accumulated, which proved that for many thousand years the human type has been practically the same as it now is: the question then forced itself forward, How long would it take a simple cell to develop through various forms to the anthropoid apes and man? The answer was given in figures higher even than those required by the geologist.

On the other hand, the question of the possible age of the world in its present condition has been attacked by Sir William Thomson from the side of mathematical physics, and his results have been recalculated and extended by Profs. Tait and Darwin. Arguments based upon (1) the internal heat of the earth, (2) the retardation of the rotation of the earth due to tidal friction, (3) the temperature of the sun, seem to show that the earth has not continued under present conditions for more than from ten to a hundred millions of years; while the theory of evolution probably requires at least three hundred millions of years for even a comparatively brief portion of geological history. The two results, each supported by strong evidence, are at present in contradiction to each other.

Political economists have for some years past been gradually realizing the immense importance of time in all their theories and calculations. The various causes which accelerate and retard the rate of growth are most important questions, not only for agriculturists, but for the whole population, who are dependent for their subsistence upon the reproduction of plants and animals. As Malthus pointed out in 1798, the population of a civilized country increases in geometrical ratio, while the food-supply can only be increased by importation, by taking inferior land into cultivation, or by improved methods of production. The gradual advance of civilization tends to quicken the rate of increase of population, while it decreases the three palliatives; hence, at some time, a limit must be reached at which population will increase faster than the means of subsistence. The results of this condition of affairs have been most ably discussed by Mill, and will possibly, before long, be exemplified in England.

To an individual, all duration beyond comparatively few years is of no importance, but, to a country or corporation, the difference between a hundred years and perpetuity may be very great. Two instances of this distinction have recently caused some discussion. The services of a general or lawyer may be amply rewarded by the grant of an annuity for a hundred years or for three lives; while the burden of a "perpetual pension" is felt long after the services for which it is granted are forgotten, and too often after all who have any real claim upon, or connection with, the original recipient have passed away.

The old fiction of English law, that all the land of the country belongs to the Government, and that the holders of the land are in reality not owners, but tenants, has recently been brought into prominence by Mr. George and his followers. The tenure of land varies almost infinitely in different countries, and even in diffent parts of the same country, but two simple examples may serve to render the point at issue clear. In the United States the land in the Territories, speaking generally, belongs to the Government, and has been, and to some extent is being, sold to capitalists in large lots at "prairie value."

Suppose 1000 acres worth £1 an acre are sold outright, they would fetch £1000, but the present value of a lease for a hundred years, interest being reckoned at 4 per cent., is £980. So far as the capitalist is concerned, for all practical purposes, the land is as much his own in the second case as in the first, since any change would take place in the time of a descendant whom he has never seen, and a fair compensation might be arranged for any unexhausted improvements. But, from the point of view of the Government, the case is very different they would receive for the lease only £20 less than the selling price, and at the end of the century the land, with its "unearned increment," would revert to them in the same or better condition than it originally was, with the exception of minerals, for which special arrangements by royalty or otherwise must be made, and the conditions of the tenancy could then be altered to meet any change of circumstances. Where, as is generally the case in England, the land has long ago passed out of the possession of the community, considerations of public faith rightly overpower all considerations of expediency, but even in this case the absolute sale of "Crown lands" or "commons" seems to be suicidal. That things are not perfect is no reason for making them worse.

SYDNEY LUPTON.

NOTES.

WE print to-day an article on the proposal that English men of science and others should co-operate in the movement for the erection of a statue of Ohm in Munich. The Committee appointed by the meeting at the Royal Society to make the scheme known in England, and to collect subscriptions, consists of the following members:—Sir F. Abel, Prof. D. Atkinson, Mr. Vernon Boys, Mr. Conrad Cooke, Profs. Ewing, Fitzgerald, Fleming, G. Carey Foster, Mr. Glazebrook, Prof. D. E. Hughes, Mr. Norman Lockyer, Dr. Hugo Müller, Prof. John Perry, Mr. W. H. Preece, Lord Rayleigh, Profs. Reinold, Rücker, Stokes (President of the Royal Society), Mr. Swinburne, Sir William Thomson, and Prof. S. P. Thompson. Lord Rayleigh was elected President.

THE manuscript of the Royal Society Catalogue of Scientific Papers for the decade 1874–83 is now ready for the press, but Her Majesty's Government have informed the President and Council that it is not their intention to undertake, as in the case of previous decades, the printing and publication of the work.

THOSE who knew Dr. O. J. Broch, either when he was Professor of Mathematics at Christiania, or when he was Minister of the Board of Trade in Norway, or more recently, when he acted as Director of the International Bureau of Weights and Measures at Paris, and all who had any opportunity of intercourse with him either in social or official life, will hear of his death with deep regret. Dr. Broch died at Sèvres on the 5th inst., at the age of seventy-one. It has been the especial duty of the Bureau, over which Dr. Broch presided from its creation after the Metric Convention of 1875, to construct new standards of the metre and kilogramme for the different countries, including Great Britain, which were parties to that Convention. At the time of his death all these standards had been constructed, after much patient investigation, and were only awaiting final approval at Sevres, before their delivery this year to the several contracting States. Dr. Broch's work remains to us, not only in those standards of exact measurement which, with the assistance of the men of science attached to the Bureau, he so well designed and verified, but also in the various scientific contributions by which he advanced our knowledge, particularly those published annually by the Comité International des Poids et Mesures; and in the mathematical papers issued by the Academy of Sciences at Paris (Elliptic Functions, *Comptes rendus*, 1864, &c.). Dr. Broch was a corresponding member of the Paris Academy; he was also a member of the Academies of Sciences of Berlin and Copenhagen, and a high officer of the Legion of Honour of France, and of the Order of St. Olaf of Norway.

THE death is announced of M. G. Meninghini, who had been Professor of Geology at Pisa from 1849. He died, on January 29, at the age of seventy-eight.

THE monument to be placed over the grave of the late General Prjevalsky on the shores of Lake Issik-kul has received the final approval of the Czar. It was designed by the traveller's companion and friend, M. Bilderling. The *Invalide Russe* gives the following description of it:—"The monument represents a picturesque rock 28 feet high, on the top of which is perched a large eagle, emblem of strength, intrepidity, and intelligence. The eagle grasps in its talons a map of Central Asia, the arena of the scientific exploits of the deceased, and in its beak an olive-branch, symbol of the peaceful scientific conquests which Russia owes to Prjevalsky. On one of the sides of the rock is a large bronze cross, beneath which is the inscription, 'Nicholas Mikhailovitch Prjevalsky, born 29th of March, 1839, died 20th of October, 1888.' In the interior of the rock is cut a spiral staircase crowned with an enlarged copy of the medal struck by the Academy of Sciences in 1887 in honour of Prjevalsky, and showing the original inscription, 'To the first explorer of Nature in Central Asia.'"

AT the last meeting of the Royal Swedish Geographical Society the *Vega* Gold Medal—the highest honour at the disposal of the Society—was conferred upon Dr. Nansen. There are only five other recipients, viz. Nordenskiöld, Palander, Stanley, Prjevalsky, and Junker.

THE eighth annual meeting of the Sanitary Assurance Association was held at 5 Argyll Place, W., on Monday, the President, Sir Joseph Fayrer, F.R.S., in the chair. After the reading of the Report, the following resolution was adopted: "That Dr. R. Farquharson, M.P., be ask to introduce the Sanitary Registration of Buildings Bill on the opening of Parliament, and to take the necessary steps to obtain as early a day as possible for the second reading; that Sir W. Guyer Hunter, M.D., M.P., Sir Henry Roscoe, M.P., F.R.S., and Dr. Cameron, M.P., be asked to again join Dr. Farquharson in introducing the Bill; and that as soon as the Bill is printed and in the hands of the members of the House of Commons, the President of the Local Government Board be asked to receive a deputation in support of the Bill."

THE Sanitary Institute has made arrangements for a series of lectures and demonstrations for sanitary officers, specially adapted for candidates preparing for the Institute's examination for Inspectors of Nuisances. The lectures will be delivered on Tuesdays and Fridays at 8 p.m., beginning with a lecture on the general history, principles, and methods of hygiene, to be given by Dr. Benjamin Ward Richardson, F.R.S., on March 5.

A MASTERLY paper on the scientific work of the German poet Adelbert von Chamisso was read by Emil du Bois-Reymond before the Berlin Academy of Sciences on June 28, 1888. This paper has now been issued separately. A most interesting account is given of Chamisso's voyage round the world in the *Rurik*—a voyage which in some respects resembled that of Darwin in the *Beagle*, fifteen years later. Among the many subjects which attracted Chamisso's attention during the voyage was the construction of coral islands. In connection with this question, curiously enough, he often receives credit for an observation with which he had in reality nothing to do. Darwin, for instance, was under the impression that it was Chamisso who had noticed that "the larger kinds of coral, which form rocks measuring several fathoms in thickness, prefer the most violent surf." M. du Bois-Reymond shows clearly that this observation was made, not by Chamisso, but by his companion in the *Rurik*, Dr. Eschscholtz.

AMONGST the memoirs recently published by the Société Philomathique of Paris in celebration of the hundredth anniversary of its foundation, is one by M. A. Milne-Edwards, describing a very singular new species of marsupial mammal of the genus *Dactylopsila* from New Guinea. *Dactylopsila palpator*, as it is proposed that this species shall be named, is remarkable for the enormous length of the fourth digit of the fore-limb, which surpasses in its proportions even that of the celebrated third finger of the Aye-aye, and is more than an inch longer than the two adjoining fingers. This new marsupial makes a second addition to the accurate catalogue of this order of mammals recently prepared by Mr. Oldfield Thomas, another important species (which will probably turn out to be the type of a new family) being the extraordinary fossorial form from South Australia, of which the discovery was announced in our issue of October 18, 1888 (see NATURE, vol. xxxviii. p. 588).

ON Sunday night, about 10.40, a shock of earthquake was felt in many parts of East Lancashire. At Great Harwood the vibration was so distinct that the occupants of a bedroom saw the wardrobe rocking and feared it would fall. "At Heapey, near Chorley, where there are many geological faults," says the *Times*, "a villa residence seemed to be struck three times, as if an attempt were being made to turn it round, and afterwards it oscillated to east and west five or six times, as if settling down after a violent shaking. But this effect was unique, and in most cases only a slight tremor was observed." At Bolton "there was first a heavy shock, and then for a few seconds a tremor. Doors were banged up; light articles danced in the houses; people were lifted in their beds, and one man in the out districts, who was sitting in front of a fire, was thrown into the grate, burning his hands and face. The electric bells at the fire brigade station were rung, and the central telephone office was besieged with inquiries. It was at first thought there had been a terrible colliery explosion." At Greenhaugh, near Kirkham, the shock was heralded by "a noise travelling in a westerly direction, which was followed by two or three oscillations."

AN earthquake occurred at Klagenfurt, on January 27, at 10.49 p.m., and on the same day a slight shock was felt at Ala, in the South Tyrol. At San José (Costa Rica), the National Capitol, the Cathedral, the President's palace, and many houses, were destroyed by the earthquake on December 29 and 30, 1888; and at Alejuela, several people were killed, and much damage was done.

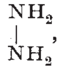
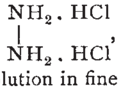
A MANILA paper gives an account of an eruption of the Mayon volcano, in the Philippine Islands, on December 15, 1888. Vast columns of ashes were seen to ascend from the crater, and in a very short space of time the darkness became so intense that, though it was midday, lights had to be used in every house. The inhabitants of Legaspi, Camalig, Ligao, Libog, and other surrounding districts, were quite panic-stricken. At the time when the mail left, no loss of life had been reported. The lava, in vast streams, was then pouring down the mountain.

IN the Report of the Meteorological Council for the year ending March 31, 1888, recently published, the Council regret the loss they have sustained by the resignation of Prof. Stokes, consequent upon his election to Parliament. His place has been filled by the appointment of Dr. A. Buchan, who is well known by his various researches in meteorology. The work of the Office during the year in question is discussed under—(1) Ocean Meteorology. In this branch active intercourse is kept up with the Royal and Mercantile Navies, and an appendix shows that a large amount of valuable observations is being collected from all parts of the ocean. The investigations into the synchronous weather of the North Atlantic, the barometrical pressure charts for the Atlantic, Pacific, and Indian Oceans, and Part 5 of the contributions to Arctic meteorology have been completed, and noticed severally in our columns. Among the discussions now in hand may be mentioned those for the Red Sea, the Aden cyclone of June 1885, current charts for the principal oceans, and cyclone tracks in the Southern Indian Ocean for the years 1848–86 from materials supplied by Dr. Meldrum. It is intended that the discussion of the weather for the region lying between the

Cape of Good Hope and New Zealand shall also be taken up. (2) Weather Telegraphy. The work in this branch of the Office continues to increase. Forecasts are prepared three times a day, at 11 a.m., 3.30 p.m., and 8.30 p.m. A comparison of the results of the latter during the year shows an average success of 84 per cent. over the whole United Kingdom, being 3 per cent. more than for the previous year. Hay harvest forecasts were also issued, the results showing considerable success. Storm warning notices were issued to 146 coast stations. Under this head may be specially noticed a discussion of the severe storms which visited the British Isles between August 1, 1882, and September 3, 1883. From this investigation Mr. Scott concludes that it is extremely improbable that telegraphic reports from America can assist in the forecasting of the weather on our coasts, and this conclusion is supported by the actual results of the experiment made in dealing with the American reports during the year. (3) Land Meteorology. The records received from the Observatories and stations are classed under five heads ; the methods employed are fully explained, and the Report shows that several important researches are being carried on in this branch.

A CORRESPONDENT writes to us from Adelaide :—"I am glad to be able to tell you that the drought, which has been so bad over nearly the whole of Australia during the past year, has at last broken up. We have had splendid rains right across the continent; the north-west monsoon, aided by a barometric trough across the interior, and a low-pressure area on the south coast, penetrating south of the tropics, and bringing a deluge of rain and heavy thunderstorms over the whole of South Australia, Victoria, and New South Wales."

IN consequence of the severity of the weather in Russia, wolves have made their appearance in East Prussia, where they have not been seen during the last six years.

THE hydrate of amidogen, or hydrazine, $N_2H_4 . H_2O$, has been prepared by Drs. Curtius and Jay, of the University of Erlangen. It may be remembered that a brief announcement of the isolation by Dr. Curtius of gaseous amidogen itself,  $\begin{array}{c}NH_2\\|\\NH_2\end{array}$, was made in NATURE (vol. xxxvi. p. 185) nearly two years ago. The free gas appears, however, to possess such an intense affinity for water, that its isolation in any quantity appears almost impracticable ; for in all the reactions yet known in which it is liberated, water is also of necessity a secondary product, and combines with the amidogen at the moment of its liberation, forming this interesting hydrate, which is a liquid, and has been obtained pure in large quantities. Hydrazine hydrochloride, or hydrochloride of amidogen, as it is variously called,  $\begin{array}{c}NH_2 . HCl\\|\\NH_2 . HCl\end{array}$, a salt which may be obtained from its aqueous solution in fine regular octahedra, was distilled with caustic lime from a silver retort. The tube of the retort was inclined upwards for some distance and then bent into a U-shape, so as to prevent the possibility of any projection of particles from the contents of the retort. To the end of the silver U-tube was attached a horizontal tube, also of silver, containing fragments of quicklime ; this in turn passed into a receiver of glass. The reaction between hydrazine hydrochloride and quicklime is exactly analogous to that so well known in the preparation of ammonia, amidogen water and calcium chloride being formed ; but instead of obtaining the free hydride, its compound with water distils over. After the distillation had been in progress a few minutes, the horizontal tube was gently warmed, when liquid drops of the hydrate began to fall into the receiver. Barium oxide behaves just like lime, but by far the largest yield of the liquid is obtained by use of a strong solution of potash. Hydrazine hydrate is a fuming liquid, of very high refractive index, boiling unchanged at 119° C. Although boiling so near the boiling-point of water, it may be almost perfectly separated from that liquid by fractional distillation. It attacks glass energetically, and rapidly destroys cork or caoutchouc. It is strongly alkaline, as expected, tastes somewhat like ammonia, and leaves a burning sensation upon the tongue. It forms well-crystallized salts with most acids, which are found extremely poisonous, being fatal to the lower animals. It is probably the strongest reducing agent known. The most easily reducible metals are precipitated from solutions of their salts in the cold. Silver separates from cold strong solutions in fine compact crystalline masses ; from very dilute solutions in the form of perfect mirrors of great beauty. On warming with a neutral solution of platinic chloride, metallic platinum separates, according to the degree of concentration, in silver-white particles or shining mirrors. In acid solutions it quantitatively reduces ferric to ferrous, cupric to cuprous, and platinic to platinous salts, with evolution of nitrogen gas. For instance, $N_2H_4 . 2HCl + 2PtCl_4 = N_2 + 6HCl + 2PtCl_2$. Finally, when dropped upon mercuric oxide, it violently explodes. From these facts it will be seen that hydrazine hydrate is one of the most remarkable liquids yet discovered, and appears likely to be of great use in chemical operations.

THE Haileybury Natural Science Society has published the first part of a list of the "Fauna and Flora of Haileybury." The volume is interleaved, and should be of considerable service to students of natural science in the neighbourhood.

MESSRS. ALLEN AND CO. have just issued a new edition of "Practical Microscopy," by George E. Davis. The work has been enlarged, and, as nearly as possible, brought down to the present time. The author has extended its scope, so as to include an account not only of English instruments, but of the apparatus in general use upon the Continent and in the United States of America.

MESSRS. LONGMANS, GREEN, AND CO. have published "The Student's Atlas," by the late Mr. R. A. Proctor. It consists of twelve circular maps, on a uniform projection and one scale, with two index maps, and is "intended as a *vade-mecum* for the student of history, travel, geography, geology, and political economy."

THE Royal University of Ireland has issued in a separate volume the examination papers of 1888. The volume forms a supplement to the University Calendar for 1889.

WE understand that the Trustees of the Australian Museum, Sydney, have decided to publish the manuscript and drawings relating to the life-histories of Australian Lepidoptera left by the late Alexander Walker Scott, and since acquired by them, and that the work of editing and revising this material has been intrusted to his daughter, Mrs. Edward Forde, and Mr. A. Sidney Olliff.

THE French Government, immediately after the recent outbreak of yellow fever at Jacksonville, despatched Dr. Paul Gibier, a French physician, to study the causes of the outbreak. Dr. Gibier now appeals to the American Government, on the ground that his own Government will not spend any more money on the task. He merely asks for the payment of incidental expenses, and for the moral support of the United States.

AT a recent meeting of the Scientific Society of Christiania, Prof. H. A. Getz exhibited the tusk of a mammoth found in Vaage, in Central Norway. This is the first discovery of remains of this animal in Norway.

THE Woman's Anthropological Society, Washington, has entered upon the fifth year of its existence ; and, according to *Science*, it displays "undiminished enthusiasm and vigour." Mrs. Sybil A. Carter (wife of the Hawaiian Minister) and Miss Florence Spofford act respectively as President and Secretary.

WE learn from *Science* that Dr. Thomas Featherstonhaugh, a grandson of the famous pioneer geologist, has just returned from a visit to Florida, and has brought back an interesting collection of aboriginal remains. He thoroughly examined a mound of damp sand on the shore of Lake Apopka, about the geographical centre of the State, and farther south than any previous researches of the kind. The mound was 50 feet in diameter and 14 feet high, and was covered with a dense growth of palmetto and other trees. It was found to be full of fragmentary bones and pottery, so numerous that Dr. Featherstonhaugh estimates that there could have been no less than four hundred bodies deposited there. A few Venetian beads near the top indicated intrusive burials, but below 4 feet there were no evidences of any intercourse with whites. Four shapely hatchets were recovered, also a charm-stone, and numerous specimens of decorated pottery. The whole find was presented to Major Powell, and by him turned over to the National Museum.

ALL hope has now been abandoned of saving Prof. J. Mainwaring Brown, who occupied the Chairs of English Language and Literature and of Political Economy in the University of Otago, New Zealand. He was one of an exploring party, being accompanied by Mr. White and Major Goring, which set out on an expedition to the neighbourhood of Lake Manapouri. One morning, Mr. Brown left his tent for a stroll in the bush, and, shortly after, a terrific storm of snow, wind, and hail burst over the district, and lasted without intermission for three days. His companions made every effort to find him, but without avail. Large search-parties were formed, but no tidings were obtained of the unfortunate gentleman. An enterprising newspaper proprietor in Otago despatched a special search-party at his own cost, and the Government have sent a steamer to Smith Sound, in the hope of obtaining some intelligence.

AT the Royal Institution, Dr. Sidney Martin will, on Thursday next (February 21), begin a course of four lectures on the venom of serpents, and allied poisons, including those used in the Middle Ages; and Lord Rayleigh will, on Saturday (February 23), begin a course of eight lectures on experimental optics (polarization, fluorescence, wave-theory, &c.). Mr. Harold Crichton-Browne will give a discourse on Friday evening (February 22), entitled, "In the Heart of the Atlas."

A CORRESPONDENT writes to point out that the planet Venus is now visible before sunset even in London. A few days ago he saw it at 4.30 p.m., thirty minutes before sunset, and as it was then very distinct he has no doubt that he could have seen it earlier if he had looked for it.

MR. HAROLD P. BROWN AND MR. GEORGE WESTINGHOUSE, Jun., have had a public discussion on the respective merits of alternating and continuous electrical currents. Mr. Brown, apparently not having satisfied Mr. Westinghouse, issues the following challenge, which we take from one of the electrical papers:—"I challenge Mr. Westinghouse to meet me in the presence of competent electrical experts, and take through his body the alternating current, while I take through mine a continuous current. The alternating current must not have less than 300 alternations per second (as recommended by the Medico-Legal Society). We will begin with 100 volts, and will gradually increase the pressure 50 volts at a time, I leading with each increase, each contact to be made for five seconds, until either one or the other has cried enough, and publicly admits his error. I will warn Mr. Westinghouse, however, that 160 volts alternating current for five seconds has proved fatal in my experiments, and that several men have been killed by the low-tension Jablochkoff alternating current." In other words, says Mr. Harold Brown, "I invite you to have a current passed through your body which I know (though you do not) will kill you, and I invite competent electrical experts to be present at the death which is sure to ensue." Mr. Brown and his experts will make preparations for what they all know to be an experiment highly dangerous to life, and which some of them believe must be fatal to Mr. Westinghouse, and if the latter is foolish enough to agree to his opponent's idiotic proposition, and the result is what Mr. Brown says is certain, then Mr. Brown and his experts will find themselves lodged in gaol awaiting their trial for murder, and being accessories to murder. If Mr. Brown knew a pistol was loaded which Mr. Westinghouse declared was not, and then induced the latter to fire it into his head to test which was right, Mr. Brown and the gallows would run the risk of being acquainted, while the experts who aided and abetted him would have an opportunity of trying the effects of some years' penal servitude. This fustian "challenge" does not make Mr. Brown any more accurate than he was before, but it must make every man of common-sense pretty certain that he can be an excessively foolish person, and that the chances are, when Mr. Brown is particularly positive about anything, he is wrong.

THE additions to the Zoological Society's Gardens during the past week include a Tropical Squirrel (*Sciurus æstuans*) from Bolivia, presented by Mr. Peter Suarez; four Marbled Polecats (*Putorius sarmaticus*) from India, presented by Colonel Sir Oliver B. C. St. John, K.C.S.I., R.E.; eight Indian Gerbilles (*Gerbillus indicus* 2 ♂ 6 ♀) from India, presented by Dr. J. Gilbert; a Jackdaw (*Corvus monedula*), British, presented by Mr. Basil Carter; an Areolated Tortoise (*Homopus areolatus*), seven Tuberculated Tortoises (*Homopus femoralis*), two well-marked Tortoises (*Homopus signatus*), a Robben Island Snake (*Coronella phocarum*), two Infernal Snakes (*Boodon infernalis*), two Aurora Snakes (*Lamprophis aurora*), a Many-spotted Snake (*Coronella multimaculatus*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; an Adorned Ceratophrys (*Ceratophrys ornata*) from Buenos Ayres, presented by Captain Hairley.

OUR ASTRONOMICAL COLUMN.

NEW MINOR PLANET.—M. Charlois discovered a new minor planet, No. 284, on February 8, at the Nice Observatory. M. Charlois has named No. 277 Elvira.

OBSERVATIONS OF VARIABLE STARS.—Mr. Paul Yendall publishes in *Gould's Astronomical Journal* the results of his observations of a few variable stars in 1888. The observations compare as follows with the ephemerides given week by week in NATURE:

Star.	Observed.		Calculated.
R Ursæ Majoris...	Oct. 22 *M*	...	Nov. 7 *M*
R Scuti	Aug. 6 *m*	...	Aug. 15 *m*
η Aquilæ	June 12·98 *M*	...	June 12·88 *M*
	July 25·76 *M*	...	July 25·96 *M*
	Sept. 6·50 *M*	...	Sept. 7·00 *M*
S Sagittæ	Sept. 27·9 *m*	...	Sept. 27·9 *m*
	Sept. 30·5 *M*	...	Sept. 30·9 *M*

WINNECKE'S PERIODICAL COMET.—An exceedingly valuable memoir on the motion of this comet has recently been published by Dr. von Haerdtl, *Privatdocent* for Astronomy in the University of Innspruck. The most interesting point of this memoir, which was communicated to the Imperial Academy of Sciences of Vienna, lies in the evidence it supplies that an increase is necessary in the accepted value for the mass of Jupiter. After referring to the early history of the comet, its probable identity with Comet 1766 II., and with that discovered by Pons on February 6, 1808, and its rediscovery by the same observer on July 18, 1819, Dr. von Haerdtl commences the detailed treatment of the observations made during the four last periods when it was seen—viz. 1858, 1869, 1875, and 1886, discussing the individual observations, some 462 in all, with great thoroughness, and forming normal places and computing the resulting